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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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| In re Application of<br>ChangMin Chun et al | ) | Before the Board of<br>Patent Appeals and Interferences<br>Examiner: Harry D. Wilkins III |
| U. S. Serial No. 10/002,576 | ) | Confirmation Number: 4233 |
| Filed: October 26, 2001 | ) | Group Art Unit: 1742 |
| REACTIVE HEAT TREATMENT TO FORM PEARLITE FROM AN IRON CONTAINING ARTICLE | ) | Family Number: P2001J062 |

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

## Appeal Brief Under 37 CFR 1.92

### Real Party In Interest

The invention which is the subject of this appeal is assigned to ExxonMobil Research and Engineering Company.

### Related Appeals and Interferences

There are no other appeals or interferences which will directly affect or be affected by or have a bearing on the Board's decision in this appeal.

CERTIFICATION OF FACSIMILE TRANSMISSION
I hereby certify that this paper is being facsimile transmitted to the Commissioner for Patents facsimile number 1-703-872-9311 on the date shown below.

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Status of the Claims

The application was filed with 8 claims and 3 new claims were added during prosecution; however 4 claims had been cancelled. As a result claims 1, 2, 6, 7, 10 and 11 are still pending.

Claims 1, 2, 7 and 10 stand rejected by the Examiner under 35 USC 103(a) as unpatentable over Ramanarayanan (US 5,869,195) in view of Garg (US 6,287,393) and Hemsath (US 5,997,286). Claims 6 and 11 were rejected based on the foregoing patents in further view of Kerridge (US 4,461,655). The rejection of all these claims is appealed.

Status of Amendments

On July 13, 2004 appellants submitted an amendment in response to the final rejection of May 25, 2004. The amendment, however, was not entered on the asserted grounds that it did not place the case in condition for allowance.

Summary of the Invention

This invention is concerned with producing a continuous pearlite structure from an iron containing article (paragraph [0009] bridging pages 2 and 3) which will provide corrosion protection (page 4, line 2). The iron containing article has less than 0.77 wt% carbon and at least 50 wt% iron. (Para. [0022]) The article is heated for a time and at a temperature sufficient to convert at least a portion of the article to an austenitic structure. Next the article is exposed to a carbon supersaturated environment at 727°C to 900°C to diffuse carbon into the austenitic structure. Then the article is cooled resulting in formation of a continuous pearlite structure (Para. [0009]).

The Issues

Whether the Examiner improperly rejected claims 1, 6, 7, 10 and 11 under 35 USC 103(a).

Grouping of the Claims

All the claims comprise a single group.

Argument

(1) Ramanarayanan in view of Garg and Hemsath fail to render claims 1, 2, 7 and 10 obvious.

Ramanarayanan is concerned with protecting refinery steels against corrosion by forming an iron sulfide film on the surface of the steel provided the surface has a pearlitic microstructure. (Abstract) Ramanarayanan teaches forming a pearlite structure by heating a conventional ferritic-pearlitic steel containing at least 0.7 wt% carbon above 900°C and then at about 675°C where pearlite transformation takes place (col. 2, lines 55 to 60). Alternatively heating in a carburizing atmosphere at a temperature above 900°C is taught (col. 3, lines 1 to 5). Ramanarayanan does not disclose or suggest heating to form an austenitic structure and then heating at 727°C to 900°C in a carbon atmosphere followed by cooling as required by appellants' claims. Indeed appellants show in their Figure 4 that carburization of austenite at temperatures above 900°C does not result in a continuous pearlite structure.

Garg is concerned primarily with producing atmospheres that are suitable for carburizing carbon steel articles (col. 3, lines 56 to 58). Garg does disclose carburizing metal articles by heating them to a temperature of from 800°C to 950°C under a carburizing atmosphere (col. 4, lines 48 to 64). Garg does not disclose or suggest heating the article to the austenitic range before carburization as required by appellants' claimed method.

The Examiner contends that it would be obvious to use the temperature range of Garg in the process of Ramanarayanan. Such, however, is not the case. Quite clearly there is absolutely no motivation for using the Garg temperature range in the process of Ramanarayanan because Ramanarayanan states that conventional steels are converted to

pearlite structure by heating above 900°C and then at 675°C (col. 2, lines 55 to 60) or alternatively by heating in a carburizing atmosphere at a temperature above 900°C (col. 31, lines 1 to 5).

Hemsath is cited as teaching a preheating zone prior to carburizing a metal. The preheating, however, is conducted in an oxidizing atmosphere for the purpose of deoiling the metal article (col. 6, lines 56 to 60). Thus, Hemsath does not suggest heating an iron article having less than 0.77 wt% carbon to convert the ferrite structure to an austenitic structure, followed by carburization at 727°C to 900°C. That teaching comes solely from appellants' specification and claims.

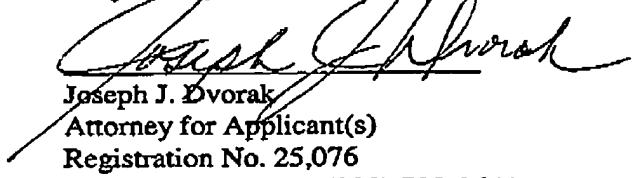
(2) Ramanarayanan in view of Garg, Hemsath and Kerridge fail to render claims 6 and 11 obvious.

Kerridge is concerned generally with the carburization of metals in a fused salt bath where the fused salt is the source of the carburization species (col. 1, lines 15 to 17). Thus Kerridge has nothing to do with carburization of metals in gaseous atmospheres such as those disclosed in Ramanarayanan or Garg for example or the carbon supersaturated atmosphere of appellants. Indeed Kerridge fails to offer anything that overcomes the deficiencies of the primary references already discussed above.

Conclusion

In view of the foregoing, appellants submit that their claims are patentable over the cited art and they respectfully request the Board to reverse the Examiner's rejections.

Respectfully submitted,



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[X] Pursuant to 37 CFR 1.34(a)

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